WHAT IS CLAIMED IS:

1. Compressor unit, comprising a centrifugal compressor for compressing a gas and an electric motor having a stator and a rotor for driving the compressor, the compressor and the electric motor being accommodated in a common gastight housing which is provided with a gas inlet and a gas outlet, the stator being accommodated in a separate stator space, which is delimited by a wall section, surrounding the stator, of the housing of the compressor unit, a gastight partition which extends between the stator and the rotor of the electric motor, and at least one end wall which extends between the partition and the housing of the compressor unit, wherein the partition extends freely between the stator and the rotor of the electric motor and comprises a material of sufficiently high strength for it to remain clear of the stator and the rotor under working pressures of the gas which may occur inside the housing.

2. Compressor unit according to claim 1, in which the high-strength material of the partition comprises a fibre-reinforced plastic.

3. Compressor unit according to claim 1, in which the partition comprises an erosion-resistant layer on the rotor side.

4. Compressor unit according to claim 1, in which the partition comprises a gastight layer.

5. Compressor unit according to claim 1, in which the partition comprises a layer of corrosion-free metal.

6. Compressor unit according to claim 1, in which the partition comprises a layer of polyaryl ether ketone.

7. Compressor unit according to claim 1, in which the wall thickness of the partition is greater at the ends than in the middle.

8. Compressor unit according to claim 1, in which the partition and the end wall are separate parts which are connected to one another in a gastight manner by means of one or more sealing rings.

9. Compressor unit according to claim 1, in which the stator space is provided with connections to a cooling unit for supplying and discharging a cooling medium.

10. Compressor unit according to claim 1, in which the partition comprises a separate inner layer and outer layer , on the rotor and stator side, respectively, at least the inner layer having erosion-resistant properties, at least one layer having a high strength and at least one layer being gastight.

11. Method for producing a partition for a compressor unit according to claim 10, in which
the inner layer and outer layer are produced separately, in the form of an inner shell and an outer shell,
the external diameter of the inner shell, under the same pressure and temperature, is larger than the internal diameter of the outer shell;
the diameter of the outer shell is temporarily increased by means of gas or liquid pressure, and/or
the diameter of the inner shell is temporarily reduced by lowering the temperature, so that it is possible to
push the inner shell into the outer shell, after which
the temperature of the inner shell and the pressure are restored.

12. Use of a compressor unit according to claim 1 for compressing gas.